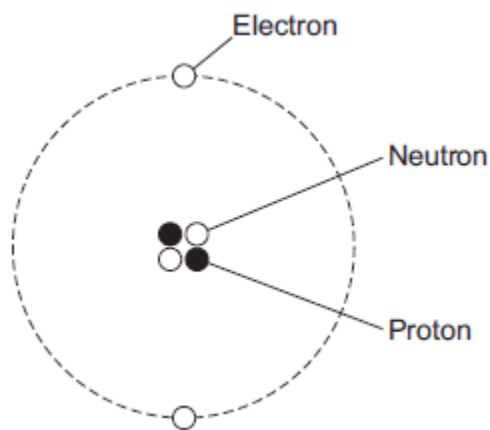


6. (a) The figure below shows a helium atom.



(i) Which **one** of the particles in the atom is **not** charged?

Draw a ring around the correct answer.

electron neutron proton

(1)

(ii) Which **two** types of particle in the atom have the same mass?

_____ and _____

(1)

(iii) What is the atomic number of a helium atom?

Draw a ring around the correct answer.

2 4 6

Give a reason for your answer.

(2)

(b) Alpha particles are one type of nuclear radiation.

(i) Name **one** other type of nuclear radiation.

(1)

(ii) Use the correct answer from the box to complete the sentence.

electrons	neutrons	protons
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The difference between an alpha particle and a helium atom is that the alpha particle does **not** have any _____ .

(1)

(iii) Which **one** of the following is a property of alpha particles?

Tick (✓) **one** box.

Have a long range in air

Are highly ionising

Will pass through metals

(1)

(c) Doctors may use nuclear radiation to treat certain types of illness.

Treating an illness with radiation may also harm a patient.

(i) Complete the following sentence.

The risk from treating a patient with radiation is that the radiation may _____ healthy body cells.

(1)

(ii) Draw a ring around the correct answer to complete the sentence.

Radiation may be used to treat a patient if the risk from the

radiation is

much bigger than about the same as much smaller than
--

 the possible benefit of having the treatment.

(1)

(Total 9 marks)